NOTICE

All drawings located at the end of the document.

surface around the structure was approximately 1 foot below the top of the structure. This structure encased only approximately 3 feet of the south end of the tank. The tank was supported by the concrete structure and a concrete footing approximately 3 feet wide located at the north end. It is unclear from the design drawings how deeply the north portion of the tank (that was not enclosed in the structure) was buried. The material which had surrounded the north portion of the tank is unknown. The ground surface around the tank location was diked (EG&G, 1990c).

The area is currently relatively flat and includes both paved and unpaved surfaces. Prior to 1968, the entire area was unpaved. The location is highly congested with overhead, ground-level, and underground pipes and utilities.

2.3.2 IHSS 118.2 - Solvent Spill South End of Building 776

Available references state that IHSS 118.2 consists of a 5,000 gallon, above ground carbon tetrachloride tank located within a bermed area between the north side of Building 707 and the alleyway south of Building 778 (Figure 2-4). In June 1981, the tank ruptured and leaked solvent onto the ground, contaminating the soil. An unknown amount of carbon tetrachloride was released in this incident. The tank and the area of the spill were subsequently cleaned up. Materials that were contaminated, were boxed and shipped to Nevada and materials that were not were likely placed in the present landfill (IHSS 114). No documentation was found which further details response to this occurrence. It is not known whether sampling and analysis was conducted to verify the complete removal of contaminated soil (DOE, 1992b). Degreasing solvents which may have been stored in or adjacent to the organic solvent tank include carbon tetrachloride, petroleum distillates, benzene and dichloromethane paint thinner, 1,1,1-trichloroethane (TCA), and methyl ethyl ketone (MEK) (2-butanone). Solvent held in the carbon tetrachloride tank is used in Buildings 776 and 707.

IHSS 118.2 was originally defined as a 30- by 70-foot area south of Building 776 (EG&G, 1990c). The HRR more precisely located this IHSS between the north side of Building 707 and the alleyway south of Building 778. More recent information provided by Doty & Associates (Appendix B) indicates that IHSS 118.2 be redefined as an area approximately 30 by 20 feet

exact location of the sewer line break between Buildings 777 and 779 is unknown, the boundaries of IHSS 144(S) include all of the alleyway. At the time of the incident, maintenance may have been cleaning out a clean-out plug near Building 701, further increasing the potential impacts on the environment (Appendix B).

Activities of samples taken from the toilet bowl in Building 701 were as high as 136,000 pCi/l on June 7 and 8. A sludge sample taken from a clean-out plug in the Building 701 sanitary sewer line contained only minimal radioactivity. Analyses of the sediments from the bottoms of Tanks 776 A, B, and D indicated liquid phase activities of 68,000 pCi/l, 9,100 pCi/l, and 302,000 pCi/l, respectively (Appendix B).

Interviewees for CEARP Phase I recalled a sewer line break between Buildings 779 and 777, which was discovered when contamination was found in a restroom. It is believed that this is the same incident as the 1972 patch rupture discussed above.

The rupture in the line patch east of the tanks resulted in soil contamination. Approximately 50 drums of soil were removed. A conflicting document states that 38 drums of soil were removed. The contaminated soil around Building 701 was also apparently removed. It is probable that residual soil contamination is present. As of June 8, 1972, 19 drums of soil had been removed. No soil count was detected at that time (Appendix B). Disposal of these drums was at either the present landfill (IHSS 114) or, if contaminated (definition of "contaminated" not provided), at Idaho.

The radiometric survey performed with a FIDLER in the late 1970s and early 1980s indicated no extremely contaminated (500,000 to 1,000,000 pCi/g) areas at or near this IHSS (Appendix B).

IHSS 150.3 - Radioactive Site Between Buildings 771 and 774 (IAG Name: Radioactive Leak Between Buildings 771 and 774)

The primary source of contamination at IHSS 150.3 is believed to be process waste lines in a cement tunnel running between Buildings 771 and 774. The primary release mechanism at this IHSS is leakage of the PWL.

IHSS 150.4 - Radioactive Site East of Building 750 (IAG Name: Radioactive Liquid Leaks East of Building 750)

The primary source of contamination and the primary release mechanism at IHSS 150.4 are unclear. IHSS 150.4 has been described as a 20- by 20-foot area northeast of Building 750. The surface is flat and mostly paved, and is used for storage, parking and loading/unloading for Building 750. The area has been paved since construction of Building 750 in 1969. In May of 1969 a fire occurred in Building 776-777. Following the fire, the tanks and pumps that handled the decontamination fluid may have been placed into the Building 750 courtyard. Several leaks have been noted from the manholes in this area since it was paved. This area is suspected to have residual contamination from the storage of the decontamination equipment, however, no documentation is available that describes the contamination of the parking area by the decontamination tanks and pumps. Manhole leaks are believed to be related to a leaking above ground process waste line (see Section 2.3.13).

IHSS 150.4 is presented again in Group III. It is presented in both Groups due to the inability to determine whether the primary release originated above or below ground surface.

South of Building 779; IHSS 150.8 - Radioactive Site Northeast of Building 779; IHSS 151 - Fuel Oil Leak - Tank 262 North of Building 347; IHSS 163.1 - Radioactive Site North of Building 774; IHSS 163.2 - Radioactive Site North of Buildings 771 & 774; IHSS 172 - Central Avenue Waste Spill; IHSS 173 - Radioactive Site - 900 Area (Storage Vaults Near Building 991); IHSS 184 - Radioactive Site - Building 991 Steam Cleaning Area (near Building 992); and IHSS 188 - Acid Leak (Southeast of Building 374). Figure 2-37 presents a schematic diagram of the conceptual model for Group III.

2.5.3.3.1 Contaminant Sources and Release Mechanisms

Primary Sources and Release Mechanisms

IHSS 118.2 - Solvent Spill South End of Building 776 (IAG Name: Multiple Solvent Spills (South End of Building 776)

A 5,000-gallon above-ground carbon tetrachloride tank located within a bermed area between the north side of Building 707 and the alleyway south of Building 778 is believed to be the primary source of contamination at this site (see Sections 2.3.2 and 2.4.1.2).

This tank is known to have ruptured and leaked solvent onto the ground, which contaminated the soil. An unknown amount of carbon tetrachloride was released. The tank and the area of the spill were cleaned up. No documentation was found that further details response to this occurrence.

IHSS 118.2 has been redefined as a 30- by 20-foot area adjacent to the north side of Building 707 (Figure 2.4) as described in Section 2.3.2. The area occupies part of the long, narrow alley between Building 707 and 778.

properties as described in Section 6.4.4.2. TM 3 will provide the basis for any additional sampling that may be required beyond Stage 3 sampling.

6.5.9 Sewer Line Breaks (IHSS 144)

IHSS 144 is divided into two separate areas, IHSSs 144(N) and 144(S). The subsurface has been affected at both of these sites due to sewer line breaks associated with four underground waste holding tanks located north of Building 776 and east of Building 701 in a small structure identified as Building 730. They are designated as Tanks 776 A through D. They were built in approximately 1956 (Rockwell, 1976) and were taken out of service in the 1980s. Additionally, the ground surface west of IHSS 144(N), east of Building 701, was also affected by the ruptured pipeline incident. The releases consisted of process waste and laundry waste. It is assumed that radionuclides, metals, and organic chemicals were included in this release (see Sections 2.3.9 and 2.4.1.9).

Following the 1972 pressurization incident, the Building 995 outfall and other downstream points were sampled daily. There was increased radioactivity in the Building 995 outfall. The highest sample concentration of total alpha-emitting radionuclides in the outfall was 417 Pci/l on June 11, 1972 (Appendix B).

Stage 1 activities as described in Section 6.4.1 will be performed as required to enhance subsequent stage investigations.

Stage 2 activities consist of collecting sediment samples downstream of Building 995 outfall and analyzing the samples for target analyte list (TAL) metals, radionuclides (i.e., total plutonium, total americium, tritium, uranium-233/234, 235, and 238, gross alpha, and gross beta), and SVOCs. Additionally, a soil-gas survey and surficial soil sample collection will be conducted on a 25-foot grid at IHSSs 144(N) and 144(S), resulting in 5 and 7 sample locations, respectively (Figure 6-5 and 6-9). Samples collected for soil-gas will be analyzed for the compounds of interest listed on Table 6.2. Surface soil samples will be analyzed for SVOCs and TAL metals. A 15 x 15 foot area next to the doorway on the east of building 701 will be also be investigated

will be collected on a 50-foot grid, resulting in 9 sample locations (Figure 6-10). Soil samples will be analyzed for TPH, TAL metals, and nitrate; and samples collected during the soil-gas survey will be analyzed for the compounds of interest listed in Table 6.2.

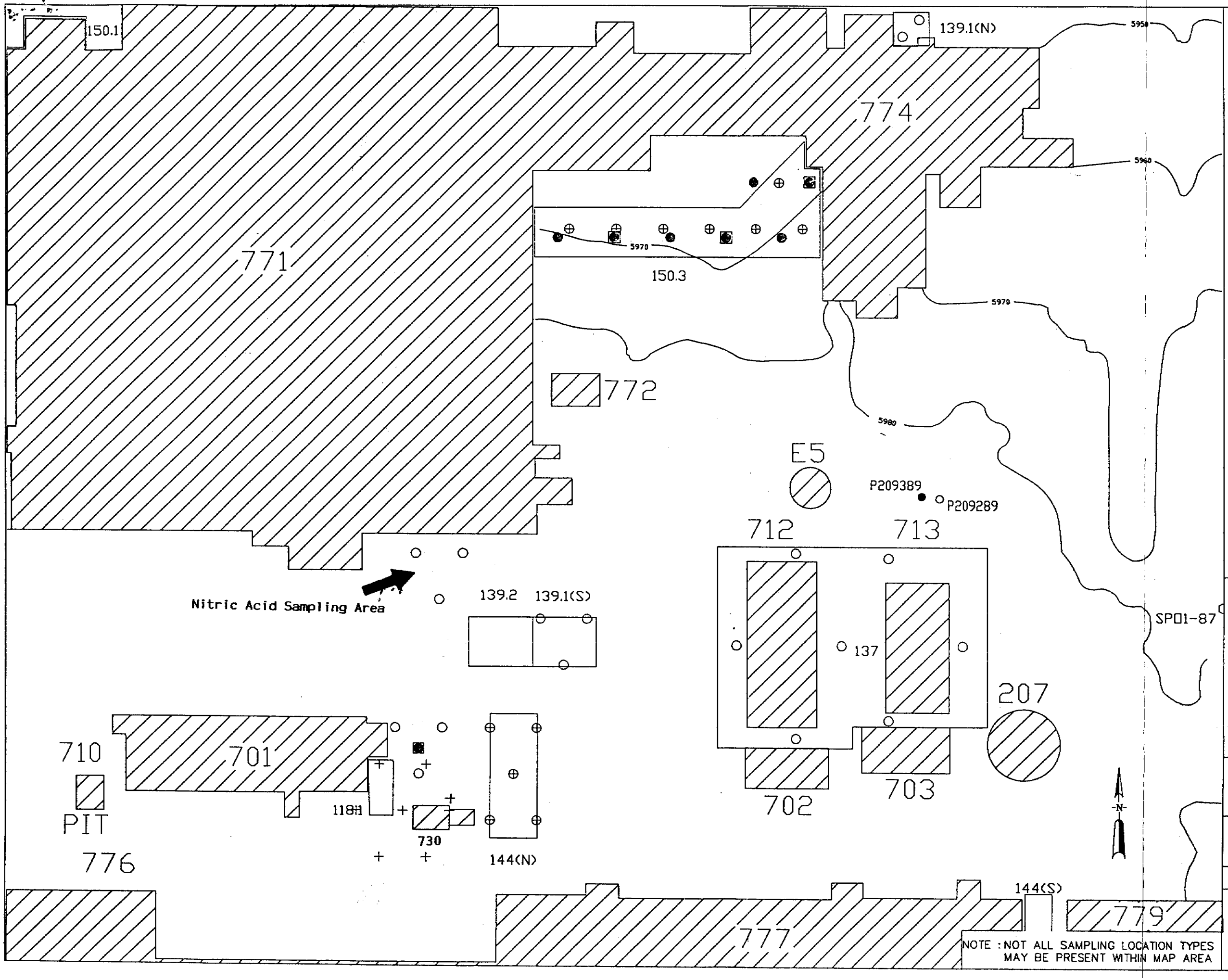
Stage 3 may include additional surficial soil sampling and will include the installation of soil boring(s) for confirmation. Also, groundwater samples will be collected via the BAT• sampler if groundwater is encountered. TM 2 will specify the number and location of soil borings to be drilled and the analyses required for the soil and groundwater samples collected in the soil borings. Also, soil samples will be collected from the soil borings for analysis of geophysical and geochemical properties as described in Section 6.4.4.2. TM 3 will provide the basis for any additional sampling that may be required beyond Stage 3 sampling.

6.5.18 Radioactive Site (IHSS 163.2)

The subsurface may have been contaminated with americium and plutonium due to the burial of a contaminated concrete slab. Stage 1 activities as described in Section 6.4.1 will be performed as required to enhance subsequent stage investigations.

Stage 2 investigations will be conducted in an effort to determine the location of the buried slab. These efforts will include conducting a ground penetrating radar (GPR) survey and possibly a magnetometer survey (assuming that the slab has been reinforced with rebar). The logic for looking for the slab first is that the slab should be easy to locate using geophysical methods and once located a sampling plan will be developed from the slab area back towards the original location. The historical account of how the slab was buried indicated that following decontamination the slab was pushed a short distance north of its original location into a ditch and used as fill. Thus, once the slab is located, the original location can be investigated more precisely (see Section 2.3.20).

Stage 3 will include the installation of soil boring(s) and/or test pits as an effort to locate the slab, provided the Stage 2 efforts failed, and/or to assess nature and extent of subsurface contamination. TM 2 will specify the number and location of soil borings to be drilled and the analyses required for the soil samples collected. Currently it is recommended that the soil samples be analyzed for americium and plutonium. Also, soil samples will be collected from the soil borings for analysis of geophysical and geochemical properties as described in Section



File Name: OU8G-5.DWG

Approved By _____ Date __/__/__

MAP LEGEND

- ROADWAYS
- SURFACE WATER FEATURES
- BUILDINGS AND NUMBERS
- INDIVIDUAL HAZARDOUS SUBSTANCE SITES AND NUMBERS

EXISTING: SAMPLING LOCATION

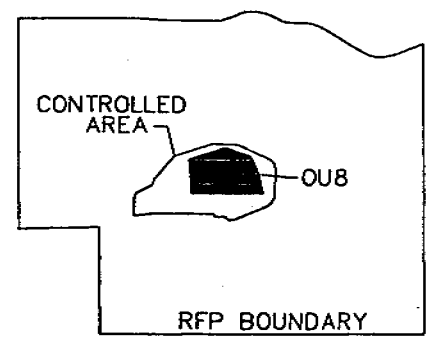
SW121	○	SURFACE WATER SAMPLING
SED124	○	SURFACE WATER SEDIMENT
P207589	●	BEDROCK WELL
P219589	○	ALLUVIAL WELL
BH33-87	⬡	BOREHOLE
560	△	PRE-1986 MONITOR WELL

PROPOSED STAGE 2 SAMPLE LOCATIONS

- \+ SOILGAS
- ○ SURFICIAL SOIL
- ◐ HPGe
- □ VERTICAL SOIL PROFILE (ACTUAL LOCATION WILL BE SELECTED IN THE FIELD)

SCALE IN FEET

0 50 100



U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden Colorado

OPERABLE UNIT NO. 8
PHASE I RFI/RI WORK PLAN

FIGURE 6-5

PROPOSED SAMPLING LOCATIONS:
IHSS Nos.: 118.1, 137, 139.1(S), 139.2, 144(N), & 150.3